

Microseismic Monitoring Report

Sulphur Mines Salt Dome – Louisiana (US)

Borehole and Surface Seismic Arrays

Report Period: August 2025

Reference: 2634299-SUL-MR-250801

Report Review: Michael Reese – Baker Hughes LBPG #1428

LBPG review using results from Baker Hughes and Nanometrics Inc.



This review is based solely on microseismic monitoring results provided in the Baker Hughes August 2025 monthly report from the Baker Hughes microseismic team. The report results were passed through the Baker Hughes QA/QC microseismic processing workflows for accuracy and repeatability. No other information, data or observations from the Sulfur Mines Salt Dome operations were provided to support Baker Hughes report results for this PG review. Interpretation of the events is performed by Sulphur Mines Salt Dome. Details of processing and events are provided in the Baker Hughes August 2025 report (appended to this cover letter).

Seismic monitoring and data processing at Sulphur Mines Salt Dome combines the borehole and surface seismic arrays data for microseismic event processing. This includes the follow:

- Nanometrics operates and performs seismic processing for the surface seismic array using broadband network stations.
- Baker Hughes accesses the real time surface array waveform data and integrates it into the borehole waveform data for processing the microseismic location and magnitude.
- Baker Hughes provides event locations and magnitudes for all seismic events at Sulphur Mines Salt Dome using the combined borehole arrays and surface array waveform data.

Alert Level Status: Low (Green)

There was no seismic event with a magnitude >0.5 in the AOI and less than 30 MEQ per day in AOI with magnitudes > -1 , thus maintaining the defined alert level status at Low (green).

With the borehole arrays, a decrease to 60 detections / 30 located events were observed in August 2025 from 105 detections / 35 located events observed in July 2025. There were 20 events reported in the AOI. With 4 events (AOI Cap Rock), 15 events (AOI caverns) and 1 event (AOI Flank). Within AOI cavern PPG-02 (7 events), LGS-02 (4 events) and PPG-07 (4 events). There were 10 events outside the AOI Flank. The maximum magnitude of -0.43 was reported in the AOI cap rock (1350 ft.) along with -0.5 (3450 ft)/ -0.68 (3350 ft) AOI-LGS-02 and -0.65 (3050 ft) AOI-PPG-002. The depths of all observed events from 903 ft to 5850 ft.

MICROSEISMIC MONITORING
MONTHLY REPORT: August 2025
Sulphur Mines Salt Dome – Louisiana (US)

2634299-SUL-MR-250801

Client / Site	Sulphur Mines Salt Dome		
Recipient	Joshua Bradley (Westlake)		
Reference	2634299-SUL-MR-250801		
Period	from	2025/08/01	
	to	2025/08/31	

Revision history

Version	Date	Issued by	Verified by	Approved by	Description
1.0	2025/09/12	E. FORTIER	E. BARBIERI	NT. CAO	Monthly report

Acronyms

Acronym	Signification
N/A	Not Applicable
PGV	Peak Ground Velocity
AOI	Area Of Interest

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Summary

Network & IT status	System Uptime	100 % – Borehole arrays 100 % – Surface Network
	Digitizers connectivity	Continuous, with no acquisition stop
	Sensors / Noise level	Borehole arrays: 100 % PPG-6 (6 levels) → noise level: 5 to 20 nm/s (RMS) except sensors PPG-6.1Z with 100 nm/s PPG-2 (6 levels) → noise level: 8 to 20 nm/s (RMS) except sensors PPG-2.3X-Z and PPG-2.6X-Y with 20-150 nm/s Surface receivers: 100 % 6 sensors (3-axis) → N/A
seismic activity	BOREHOLE ARRAY	
	Detections (of which) Located Max magnitude Max PGV Min depth Max depth	60 30 -0.4 0.0704 mm/s 903 ft 5850 ft
	Number of alerts in the month	0 – No alert triggered in August 2025

PGV = Peak Ground Velocity – Maximum vibration measured on the sensors (mm/s)

Introduction

I. Alert Level Status

During August 2025, the alert level status was: Low (Green). Alert level criteria are listed in Appendix 1.

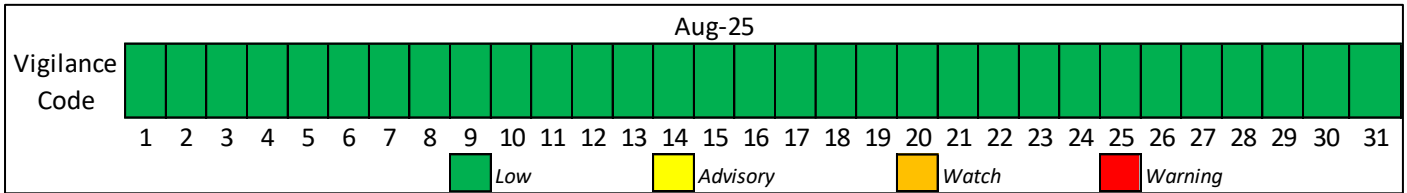


Figure 1: Alert status level during August 2025.

II. Seismic Network

Microseismic monitoring in Sulphur Mine Salt Dome is executed by:

- Two borehole arrays:**
 - Baker Hughes Microseismic Services group operates and processes data for the borehole seismic arrays located in PPG Well No. 006-X and PPG Well No. 020. The seismic array locations are shown in Figure 2, and the coordinates are listed in the Appendix 2. The borehole arrays were fully functional in August 2025.
- A surface network, composed by 6 Broadband Trillium:**
 - Data recorded by the surface broadband array operated by Nanometrics are merged with the borehole stations. The broadband station locations are shown in Figure 2 and listed in Appendix 2.

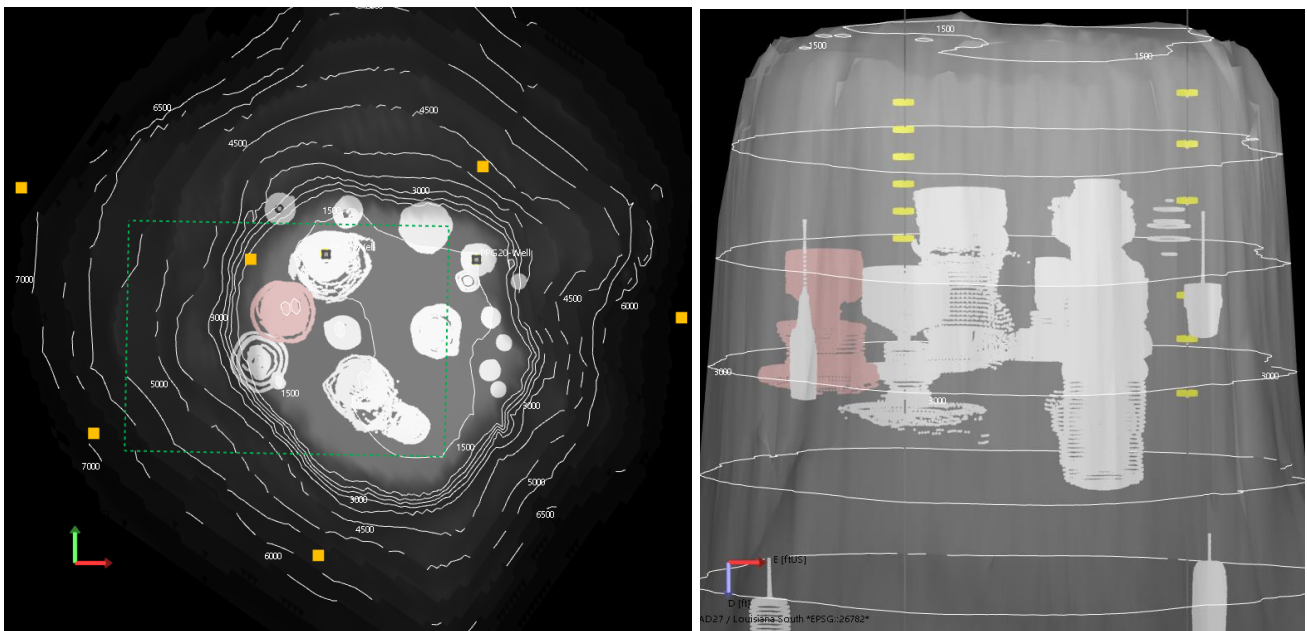


Figure 2: Map (left) and West-East cross section (looking from the South) of the Sulphur Mines Salt Dome. The salt boundary is indicated by gray contour lines. The wellbores with the borehole array sensors are marked by yellow dots for PPG No. 006X and PPG No. 020. Cavern 7 is represented with a red sonar survey. The proposed AOI is indicated on the map view by the green square. The surface network is indicated by the orange squares.

Microseismic activity during reporting period

- In August 2025, 60 seismic events have been detected by the borehole arrays, **30** events had waveform with sufficient signal to noise ratio to compute their location and magnitude.
- Amongst the 30 located events, 20 are inside the AOI (Area Of Interest):
 - 4 events in the AOI Cap-Rock.
 - 1 event in the AOI Flank.
 - 15 events are associated with caverns inside the AOI - the main caverns with the largest number of associated events were:
 - Cavern PPG-02 (7 events).
 - Cavern LGS-02 (4 events).
 - **Cavern PPG-07 (4 events).**
- The other events (10) are outside the AOI, and all located on the dome flank.
- There are two main moment magnitude events (see event 5 & 15):
 - Event of $M_w = -0.4$, on 08/07/2025 18:57:37 (CST) - AOI-Cap-Rock.
 - Event of $M_w = -0.5$, on 08/21/2025 23:50:57 (CST) -AOI-LGS-02.

The catalog of the located events is presented in Appendix 3.

I. Distribution of the microseismic event

The histogram below shows the number of the located and non-locatable events during August 2025.

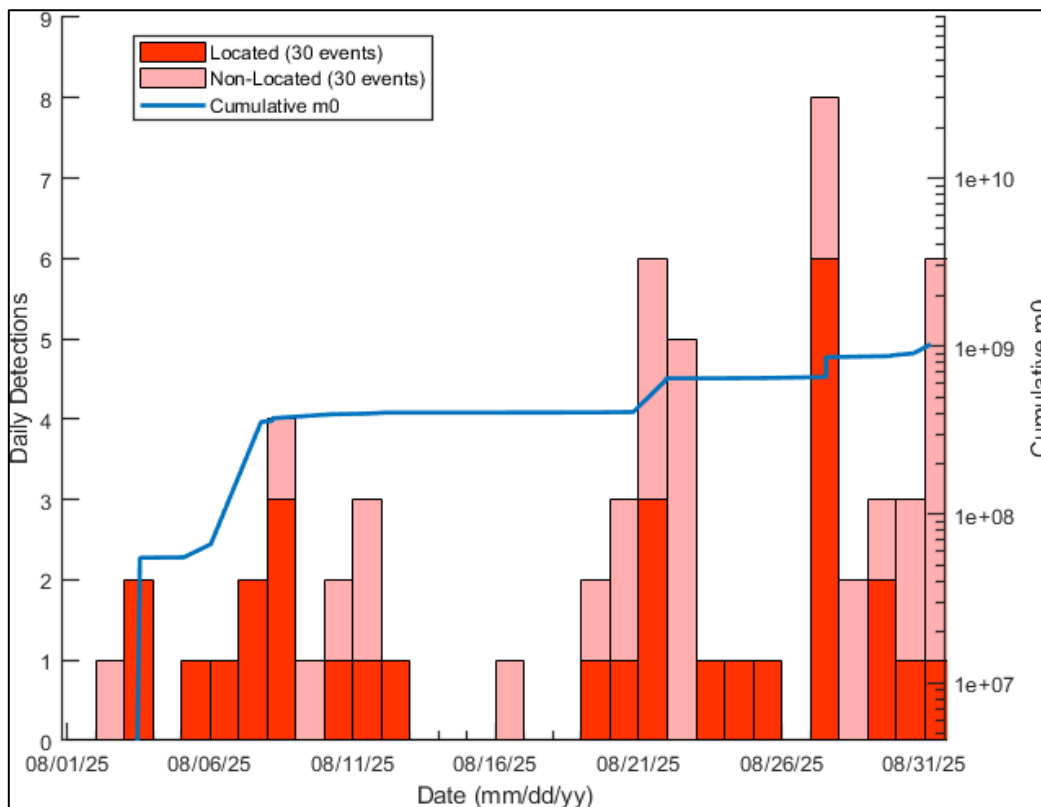


Figure 3: Daily distribution of all events during August 2025. Dark color represents the located events while light one shows the non-located events. Blue line represents the cumulative seismic moment (M_0) for the located events.

Figure 4 shows the distribution of the events by area. In August 2025 the seismicity occurred mainly in the flank (10 events), but also around cavern AOI-PPG-02 (7 events), on the risk cavern AOI-PPG-07 (4 events), and on cavern LGS-02 (4 events).

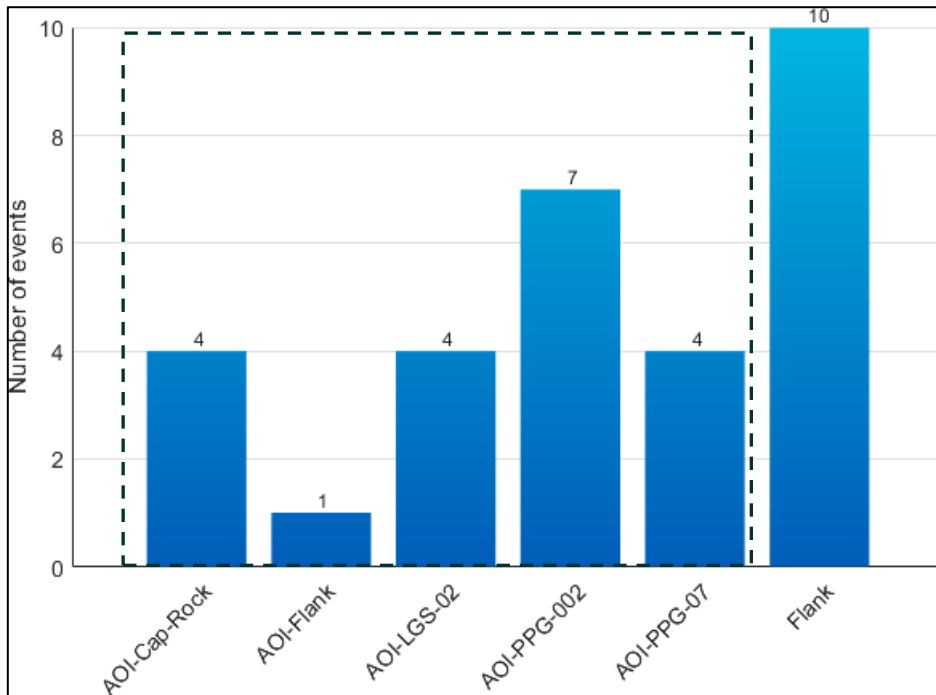


Figure 4: Events distribution by associated cavern. The green rectangle indicates the events in the AOI.

Figure 5 shows the cumulated seismic energy with respect to the areas, the 2 main areas of release of seismic energy occurred on AOI caverns PPG-002 and LGS-02.

The dome flank and PPG-07 activity is relatively high in terms of the number of events but has a low cumulated energy release.

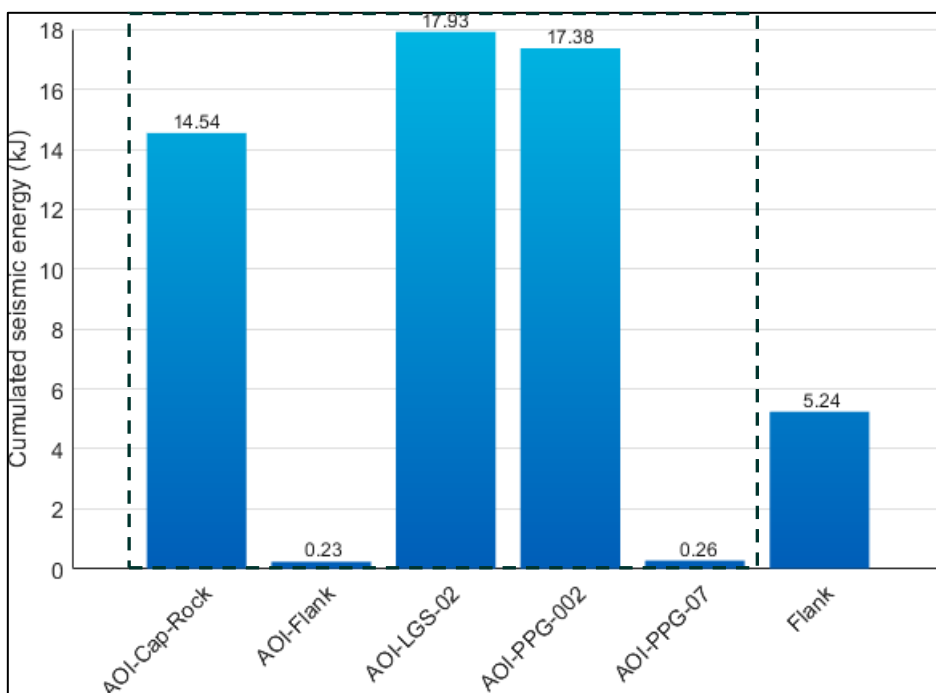


Figure 5: Events energy distribution by cavern. The green rectangle indicates the events in the AOI.

Event Location

The location maps presented in the report show:

- All events location: inside and outside the AOI (Figure 6 and Figure 7),
- Events located in the AOI (Figure 8, Figure 9, Figure 10).

I. All event locations (inside and outside AOI)

The figures below show the event locations using the borehole arrays.

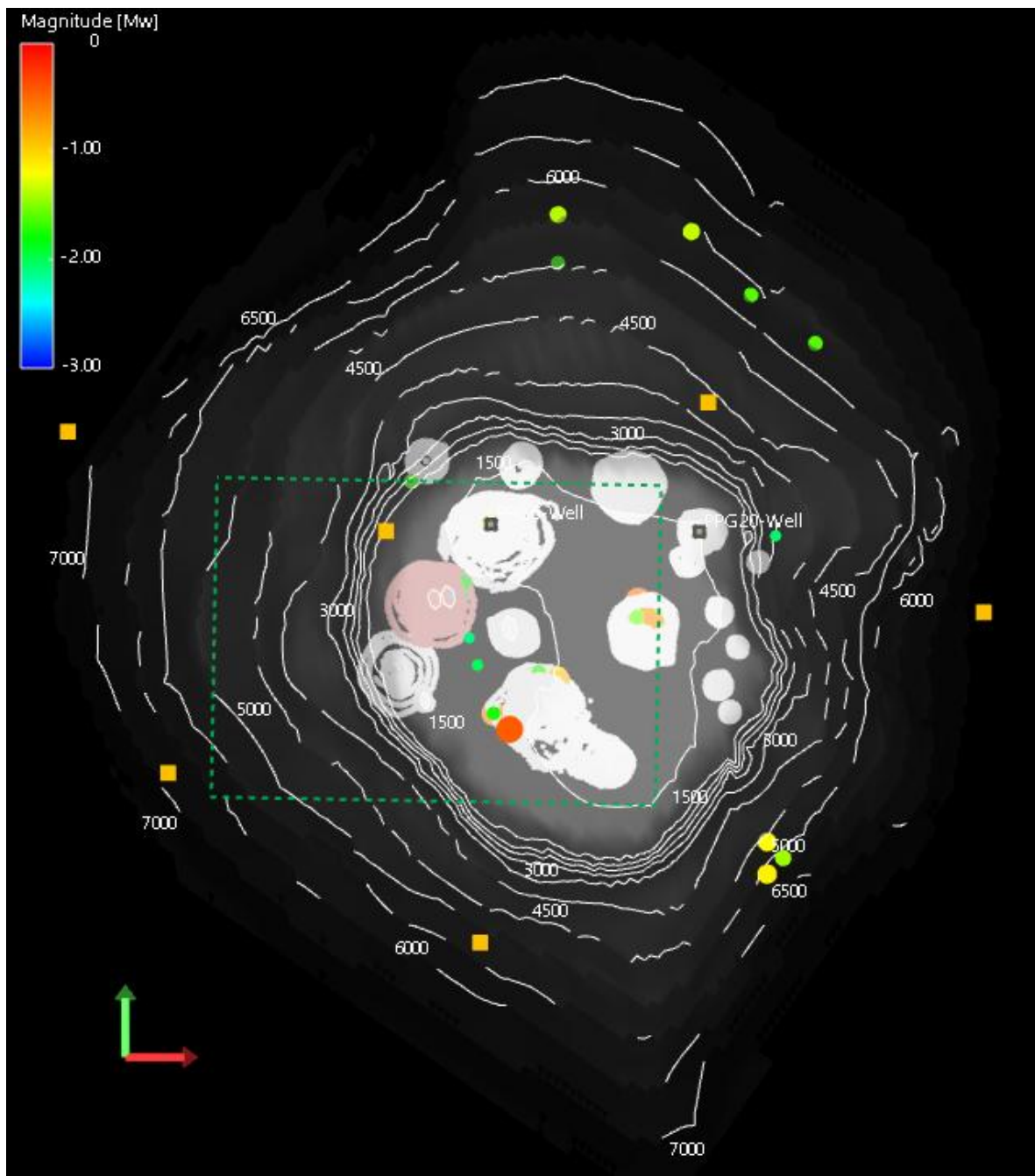


Figure 6: Map of the located events in August 2025. The events are colored, from blue to red, and sized by magnitude; the green rectangle represents the AOI.

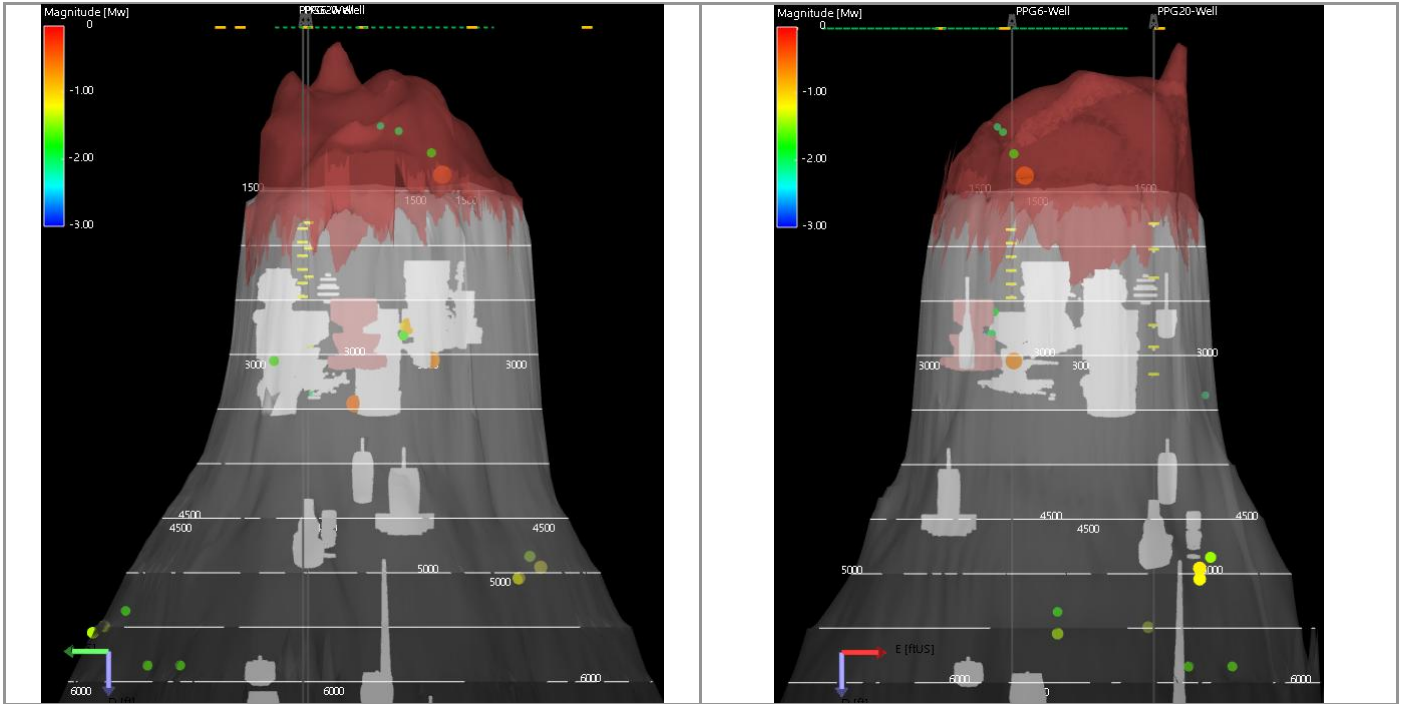


Figure 7: Cross sections W-E (right) looking from the South, and N-S (left), looking from the West. The events are colored, from blue to red, and sized by magnitude.

II. Event Location in AOI

The figures below show the location of the events inside the AOI.

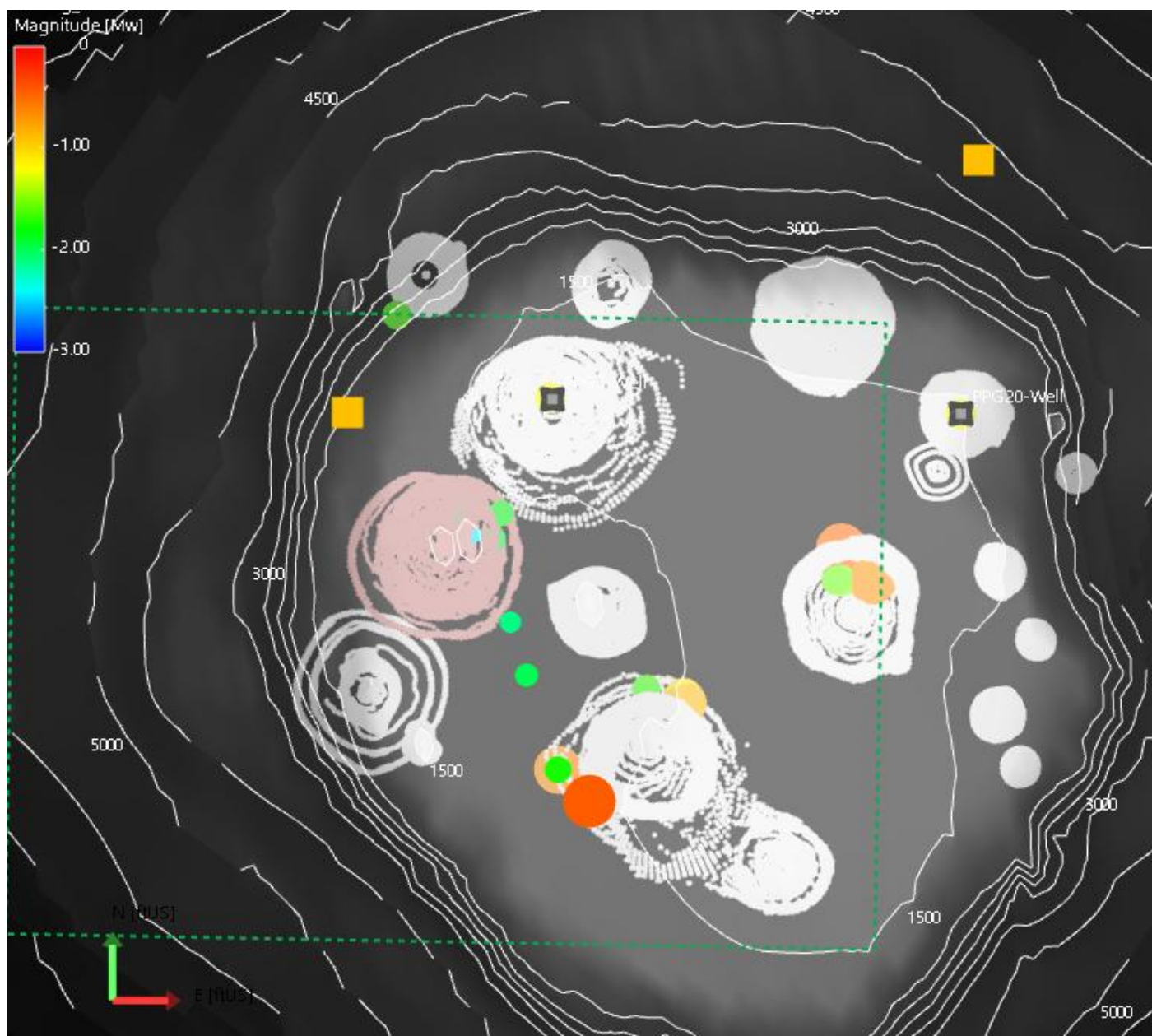


Figure 8: Map of the located events inside the AOI in August 2025. The events are colored, from blue to red, and sized by magnitude; the green rectangle represents the AOI, the orange squares represent the surface stations.

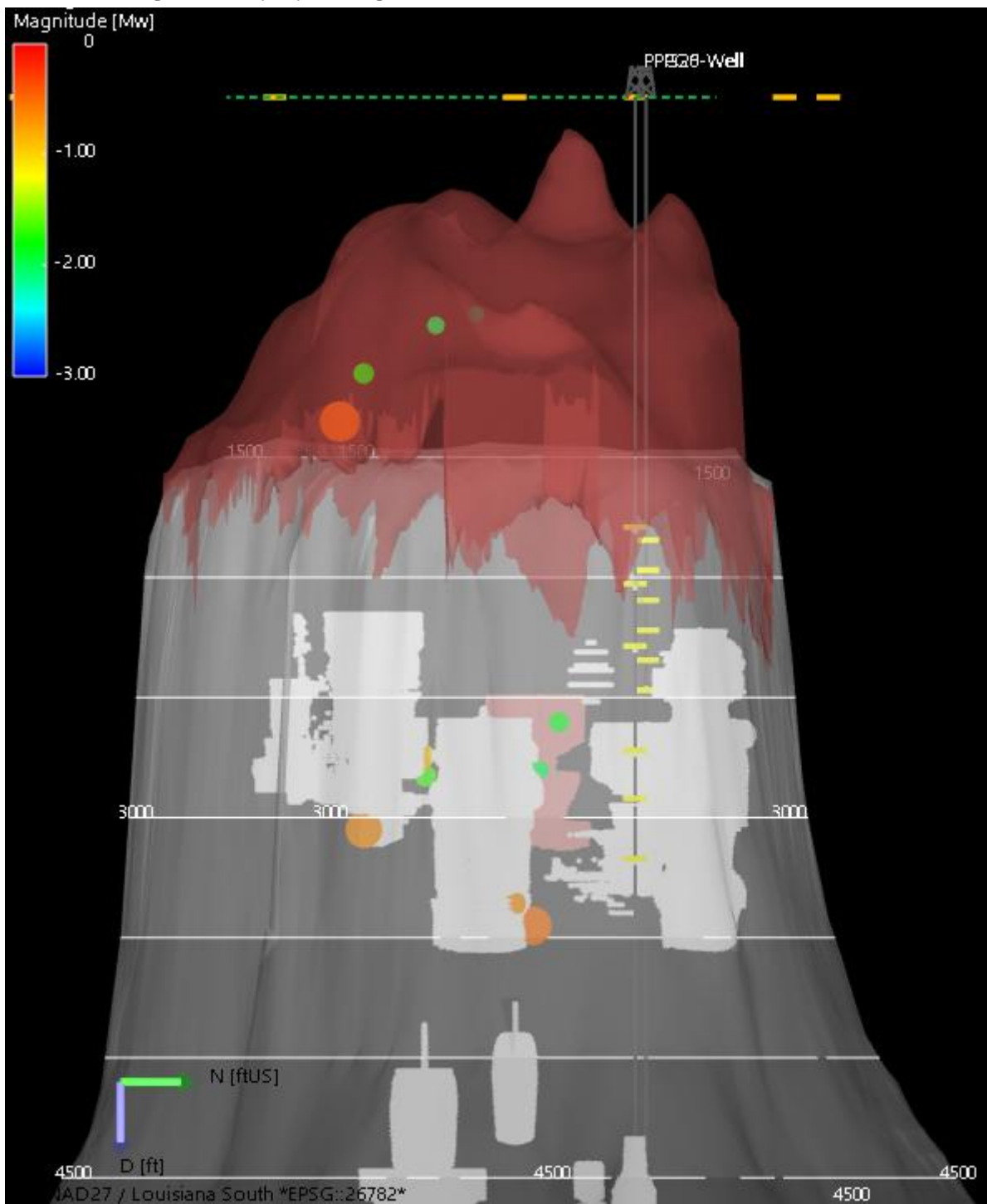


Figure 9: Cross sections S-N (looking from East) of the located events. The events are colored, from blue to red, and sized by magnitude.

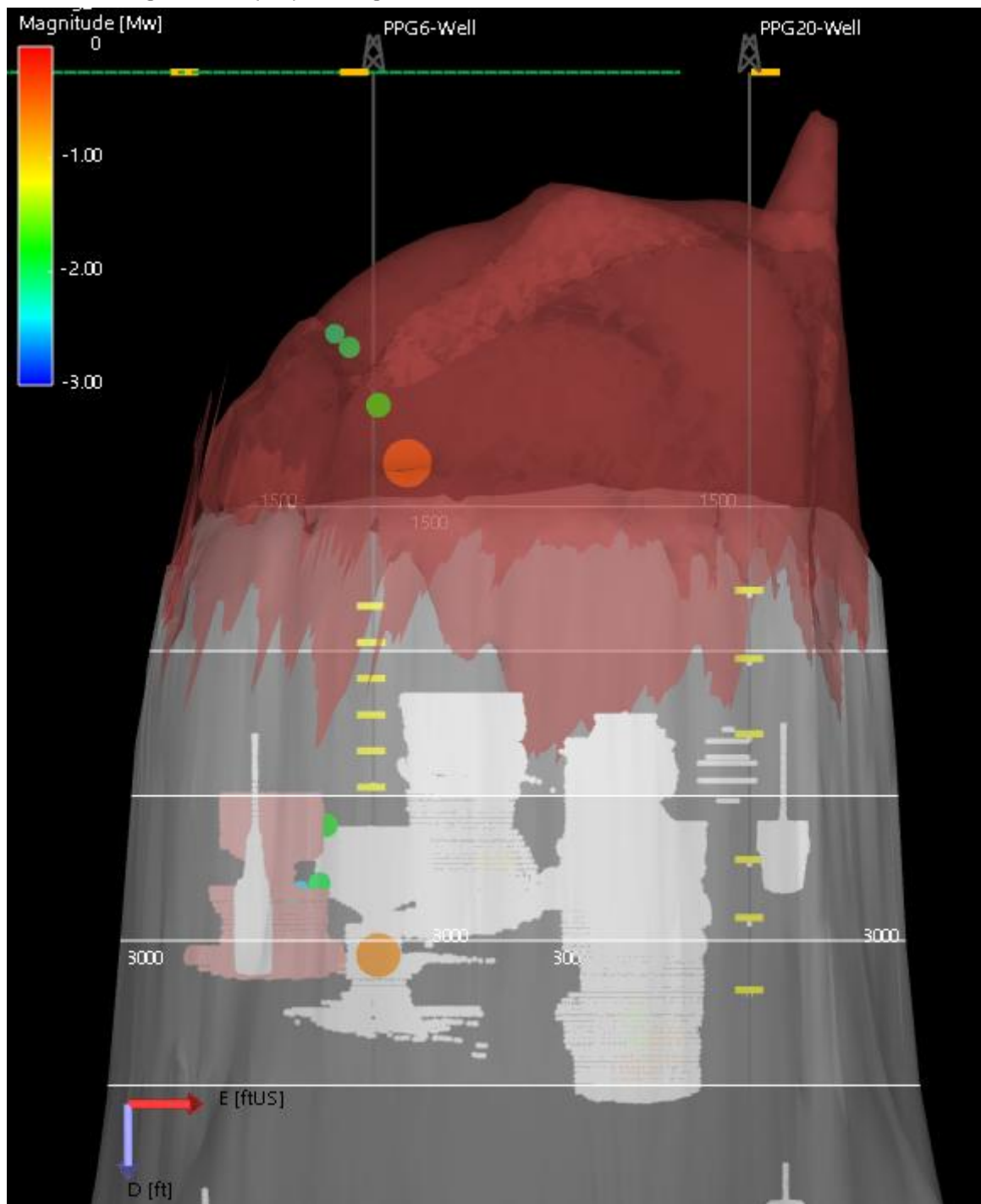


Figure 10: Cross sections W-E (looking from south) of the located events. The events are colored, from blue to red, and sized by magnitude.

Magnitude and depth distribution

The figure below shows the distribution of the moment magnitudes in August 2025. The values vary between -2.4 and -0.4, median value is -1.5.

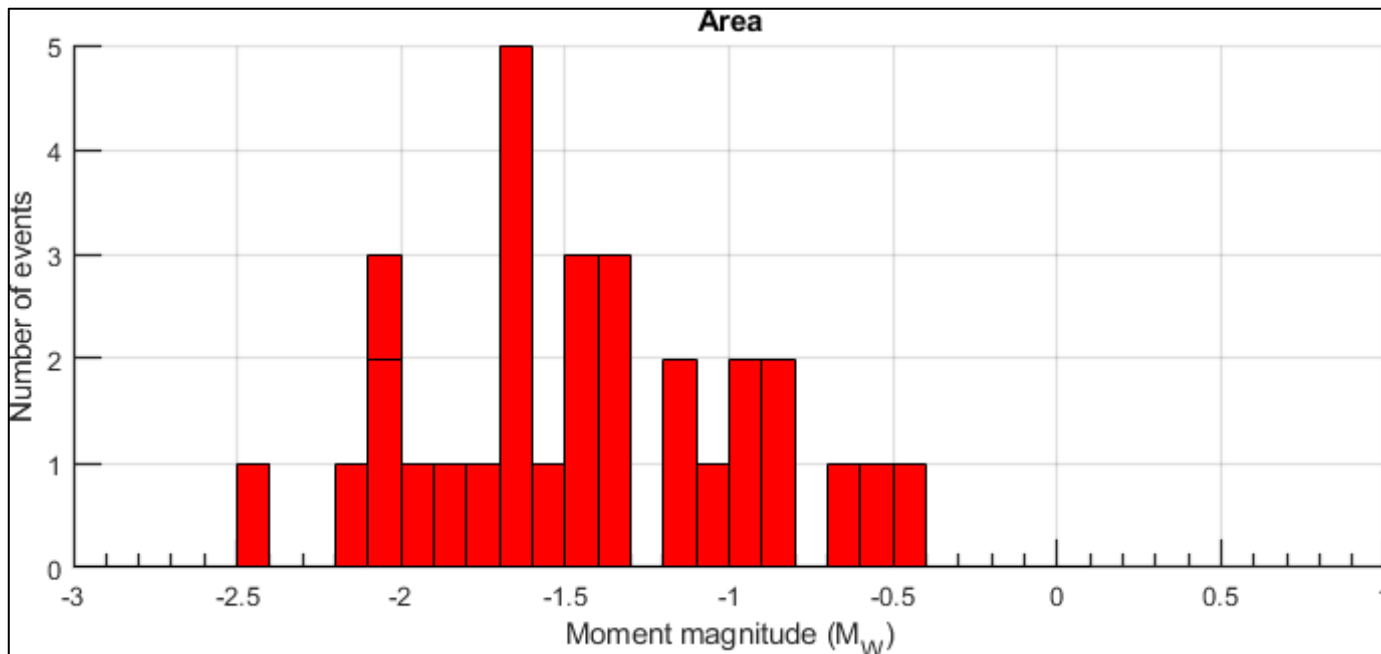


Figure 11: Moment magnitude (M_w) distribution for events located events in August 2025.

The figure below shows the depth distribution in August 2025 for all the located events.

Events are located between 903 ft and 5,850 ft. It is possible to distinguish 3 main groups:

- A first one between 900 ft and 1,350 ft (above the caverns depth and associated with events located in the Cap-Rock),
- A second one between 2,600 ft and 3,450 ft (associated with events located at depth of the caverns),
- A third one composed of 9 events below 4,850 ft (flank area).

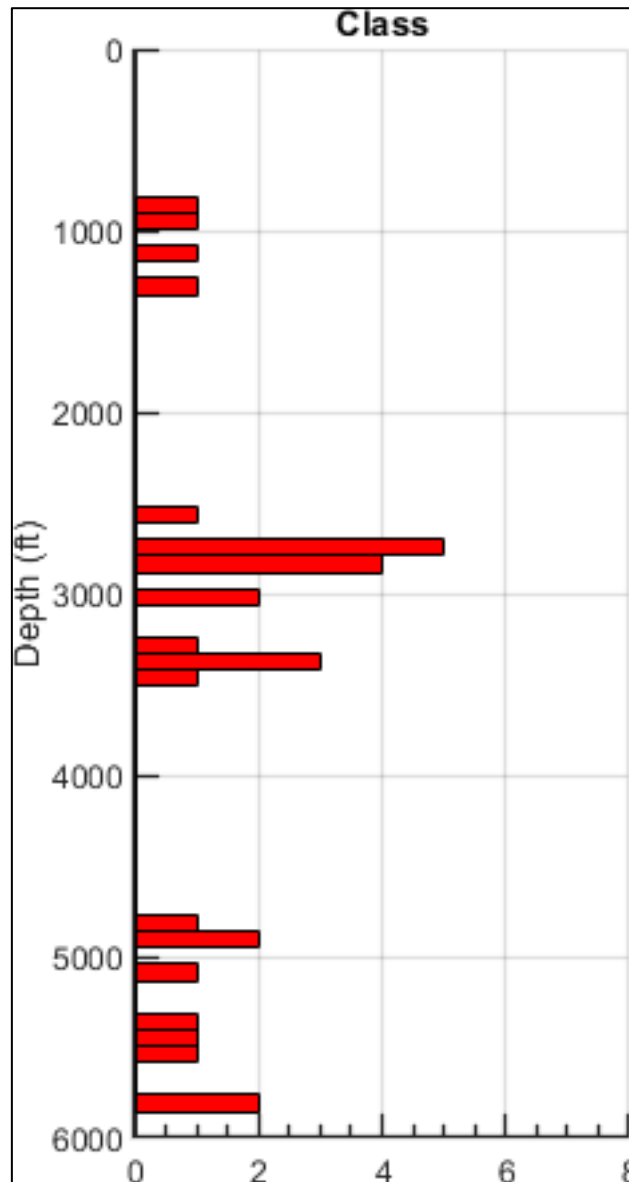


Figure 12: Distribution of the depths for all the events located events in August 2025.

Microseismic history from the beginning of the acquisition

I. History of detections

In August 2025, the total number of detections (located and not-located events) decreased with respect to the previous month (60 detected events in August 2025 compared with 105 detected events in July). The number of located events is slightly lower in August 2025 (30 located events) with respect to July (35 located events).

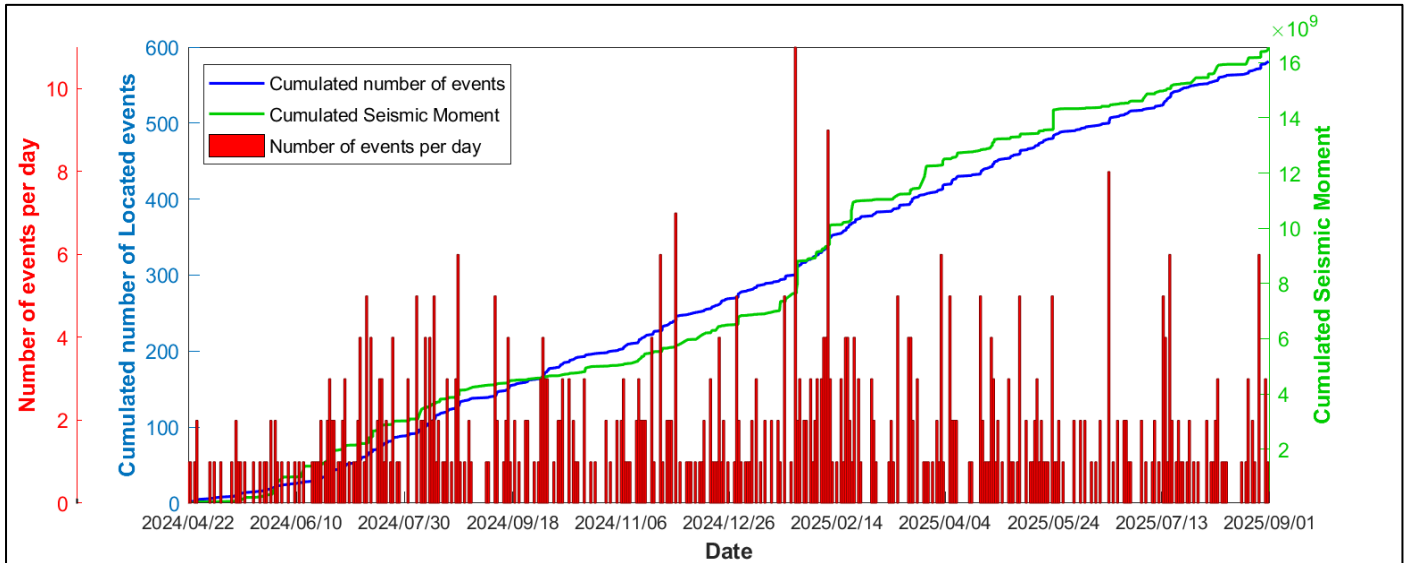


Figure 13: Distribution of the located microseismic events since the beginning of the acquisition on 04/21/2024. Blue line represents the cumulated number of located events. Green line represents the cumulated seismic moment (Mo).

II. Historical magnitude distribution

Figure 14 shows the moment magnitude distribution since the beginning of the acquisition. Dark color bars present the current monthly period and light red color bars present the distribution since the beginning of the acquisition (April 21st, 2024).

Since the beginning of the acquisition, events' magnitude ranges between -2.5 and -0.2 (for 581 located events). The median value of the magnitude, since the beginning of the acquisition, is -1.46.

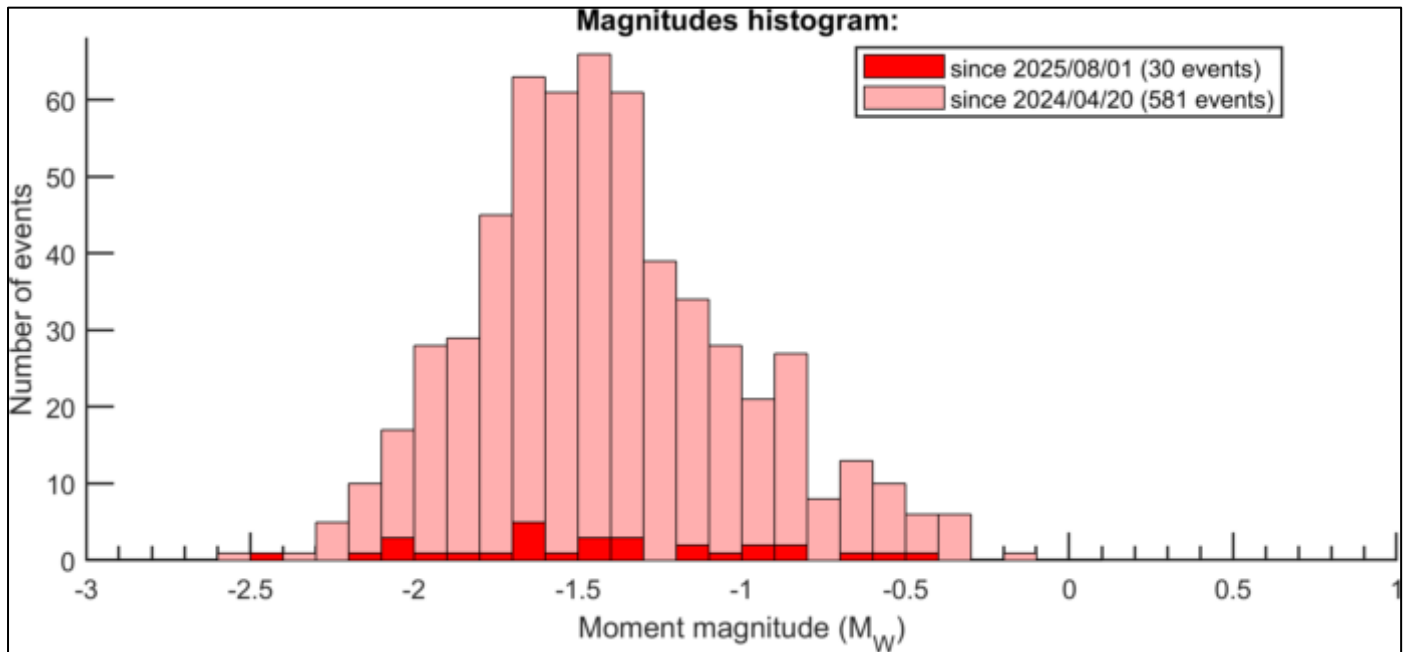


Figure 14: Distribution of magnitude (M_w) for located events. Dark color bars present the current monthly period (August 2025) and light color bars present the distribution since the beginning of the acquisition (from April 21st, 2024)

III. History of the event locations

History in Cap-Rock and on the Flank

The figure below shows the map and cross section of all the events located in the cap-rock and in the salt flank since April 21, 2024.

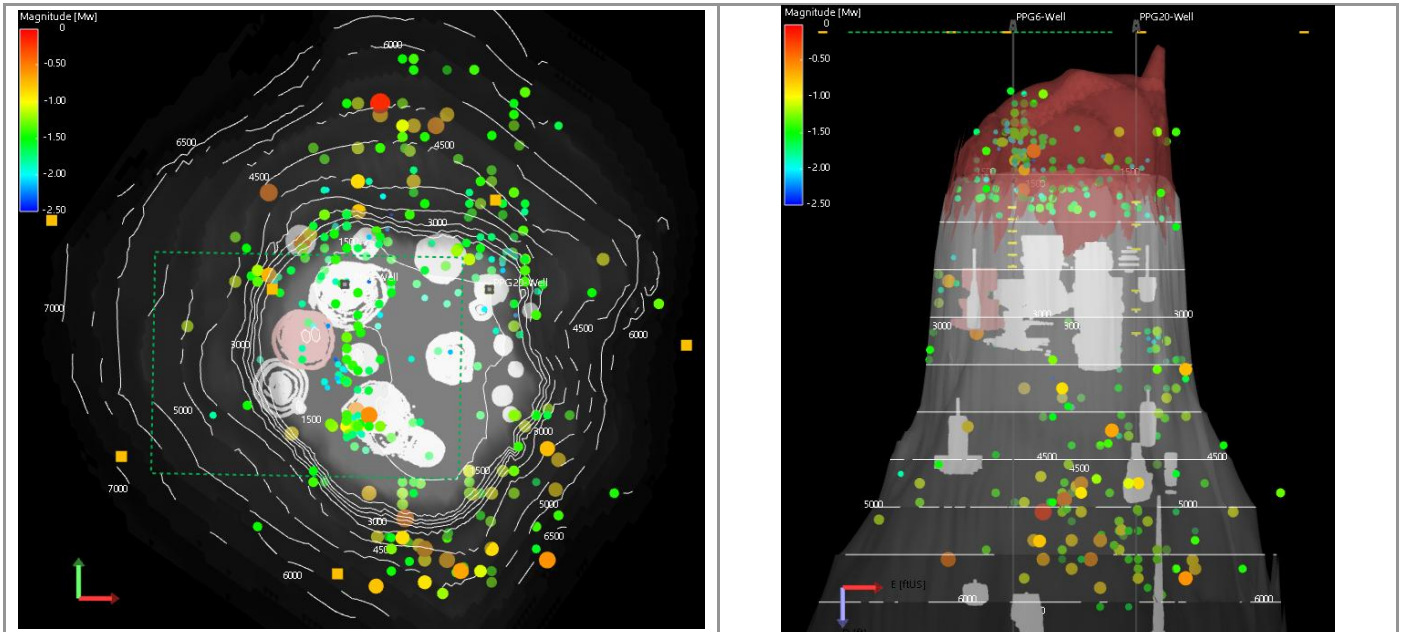


Figure 15: Map view (left) and W-E side view (right) of the cumulative seismicity recorded since the beginning of the acquisition, located in the Cap Rock (red formation) and on the Flank. Green rectangle represents the AOI. The events are colored, from blue to red, and sized by magnitude.

History around the caverns

The figures below show the history of the events associated with the caverns since the beginning of the acquisition (April 21, 2024).

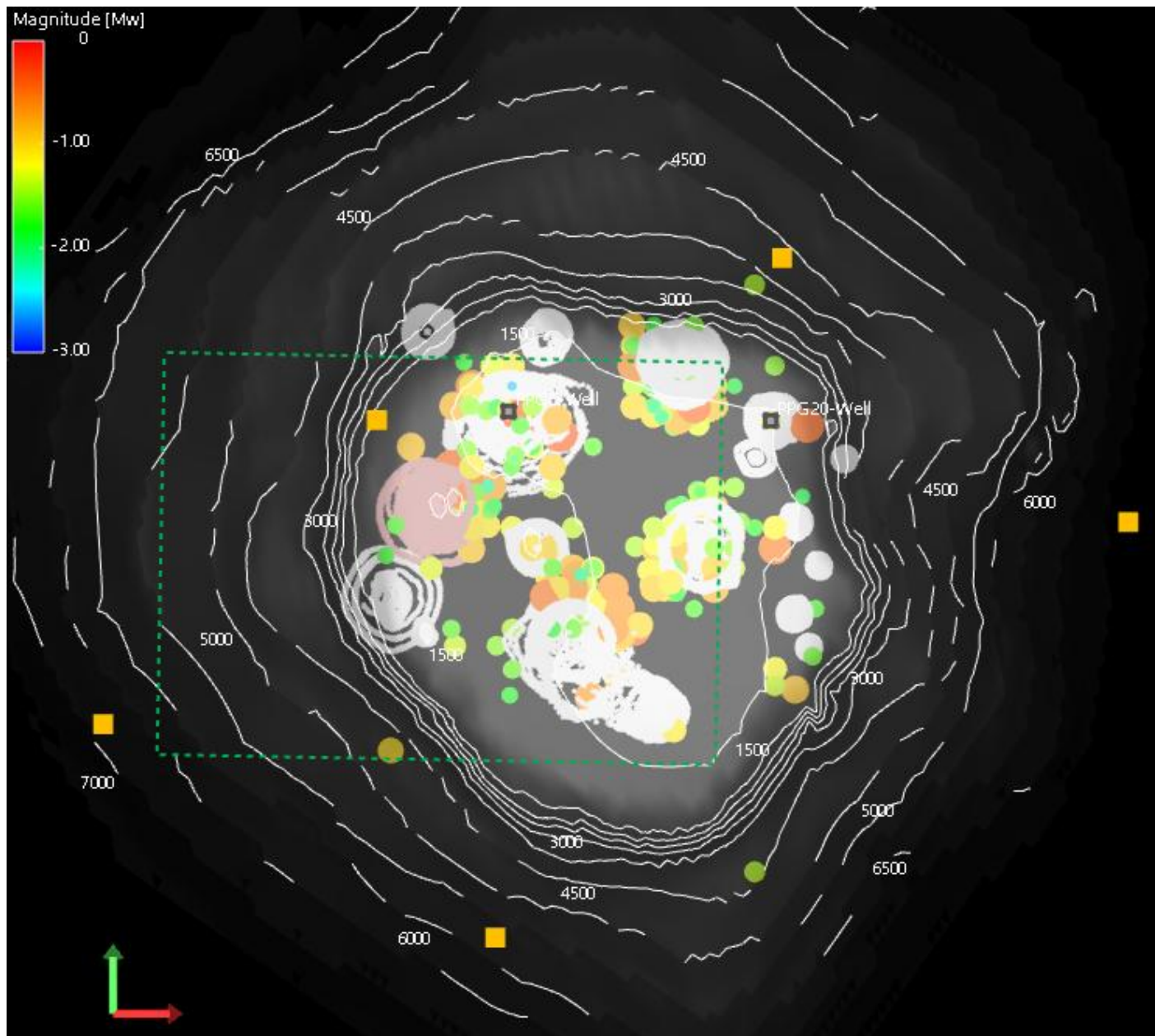


Figure 16: Map view of the events located nearby the caverns since the beginning of the acquisition (April 21, 2024). The events are colored, from blue to red, and sized by magnitude.

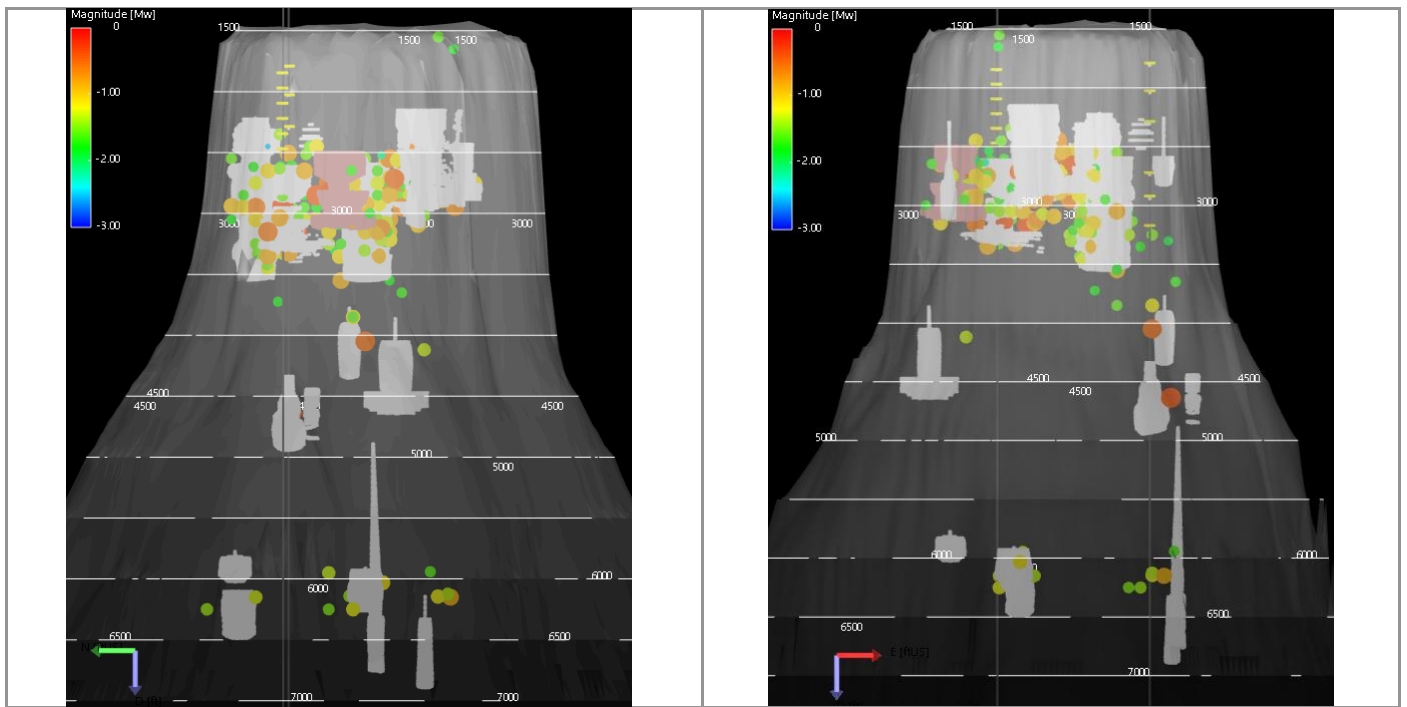


Figure 17: Events located close to the caverns since the beginning of the acquisition, on cross sections W-E (right), looking from the South; and N-S (left), looking from the West, of the. The events are colored, from blue to red, and sized by magnitude.

APPENDIX 1 – Alert level criteria

Proposed Microseismic Alert Level Criteria and Response for Sulphur Mines Dome.

Alert Status	Criteria	Response
Low (GREEN)	No events with magnitude ≥ 0.5 in AOI and/or Less than 30 MEQ per day in AOI with magnitudes ≥ -1	Once per week data processing, with previous monthly microseismic activity summary in the AOI is provided by the 15th of the following month to LDNR IMD.
Advisory (YELLOW)	Event with magnitude ≥ 0.5 and < 1.0 in AOI and/or Count of MEQ per day ≥ 30 and < 40 in AOI with magnitudes ≥ -1	Daily data processing M-F. Weekly reporting is provided LDNR IMD with activity summary from the previous week. Status remains active until seismic levels within the AOI reach "low"(green) level for 1 day.
Watch (ORANGE)	Event with magnitude ≥ 1 and < 1.5 in AOI and/or Count of MEQ ≥ 40 and < 50 with magnitudes ≥ -1 in AOI	Seven days per week data processing, 2x week reporting with activity for the previous days is provided via email and text message notifications to IMD. Status remains active until seismic levels within the AOI reach Advisory or Low criteria for 2 consecutive days.
Warning (RED)	Event with magnitude ≥ 1.5 in the AOI and/or Count of MEQ ≥ 50 with magnitudes ≥ -1 in the AOI	Seven days per week data processing, daily reporting with online meetings with stake holders as needed. The warning status level remains active until seismicity levels within the AOI reach a lower status level for 2 consecutive days.

APPENDIX 2 – Network Coordinates

Borehole arrays coordinates:

Wellbore	Sensor	TVD SS (ft)	Easting (ft)	Northing (ft)
PPG 6x	Tool 1	1844	1343141	583425
PPG 6x	Tool 2	1969	1343141	583425
PPG 6x	Tool 3	2094	1343141	583425
PPG 6x	Tool 4	2219	1343141	583425
PPG 6x	Tool 5	2344	1343141	583425
PPG 6x	Tool 6	2469	1343141	583425
PPG 20	Tool 1	1790	1344445	583372
PPG 20	Tool 2	2025	1344445	583372
PPG 20	Tool 3	2285	1344445	583372
PPG 20	Tool 4	2720	1344445	583372
PPG 20	Tool 5	2920	1344445	583372
PPG 20	Tool 6	3170	1344445	583372

Surface network coordinates:

Station	LAT WGS84	LON WGS84	Date start	Date end
Temp_1a	30.2575	-93.4123	1/30/2023	2/9/2023
Temp_1b	30.2534	-93.4135	2/9/2023	4/3/2023
Temp_2a	30.2570	-93.4097	1/30/2023	2/9/2023
Temp_2b	30.2555	-93.4132	2/9/2023	2/27/2023
Temp_2c	30.2547	-93.4138	2/27/2023	4/5/2023
Temp_3a	30.2533	-93.4091	1/30/2023	2/9/2023
Temp_3b	30.2563	-93.4146	2/9/2023	4/5/2023
Temp_4a	30.2486	-93.4123	1/30/2023	2/27/2023
Temp_4b	30.2507	-93.4121	2/27/2023	3/8/2023
Temp_4c	30.2506	-93.4100	3/8/2023	3/15/2023
Temp_4d	30.2503	-93.4119	3/15/2023	est 4/3/2023
Temp_5a	30.2502	-93.4156	1/30/2023	2/27/2023
Temp_5b	30.2507	-93.4153	2/27/2023	3/15/2023
Temp_5c	30.2504	-93.4140	3/15/2023	est 4/3/2023
Temp_6a	30.2532	-93.4166	1/30/2023	3/15/2023
Temp_6b	30.2529	-93.4161	3/15/2023	4/4/2023
Temp_7a	30.2547	-93.4161	1/30/2023	4/3/2023
Semi Perm S01	30.2453	-93.4073	4/4/2023	
Semi Perm S02	30.2571	-93.4098	4/6/2023	
Semi Perm S03	30.2536	-93.4091	4/6/2023	
Semi Perm S04	30.2470	-93.4213	4/5/2023	5/12/2023
Semi Perm S04_1	30.2506	-93.4204	5/12/2023	
Semi Perm S05	30.2564	-93.4224	4/5/2023	
Semi Perm S06	30.2532	-93.4167	4/5/2023	
Semi Perm S07	30.2547	-93.4162	4/5/2023	
SUL01 trillium	30.2452	-93.4071	9/20/2023	3/12/2024
	LAT NAD 83	LON NAD 83		
SUL02 trillium	30.2570	-93.4098	9/13/2023	
SUL03 trillium	30.2505	-93.4203	9/12/2023	
SUL04 trillium	30.2563	-93.4224	9/12/2023	
SUL05 trillium	30.2547	-93.4161	9/13/2023	
SUL06 trillium	30.2535	-93.4043	3/12/2024	
SUL07 trillium	30.2477	-93.4141	3/12/2024	

Seismic Station locations and operational dates at Sulphur Mines Dome (up to November 1, 2024).

Temporary Station locations with start and end dates provided by Westlake.

Trillium Station locations provided by Nanometrics and Westlake (Trillium SUL 02-07).

APPENDIX 3 – Catalogue of located events

#	Event origin time CST (UTC-5)	Easting (ft)	Northing (ft)	Depth (ft)	ΔEasting (ft)	ΔNorthing (ft)	ΔDepth (ft)	Mw	Detected by
1	08/03/2025 11:09:43.684	1342654	583686	3058	429	1057	775	-1.63	AOI-Flank
2	08/03/2025 13:12:54.901	1343166	582244	3050	525	1702	993	-0.65	AOI-PPG-002
3	08/05/2025 01:57:40.270	1342898	582989	2819	397	950	439	-2.43	AOI-PPG-07
4	08/06/2025 00:53:24.165	1343566	585344	5550	897	3269	1452	-1.37	Flank
5	08/07/2025 18:57:37.060	1343266	582144	1350	416	1649	920	-0.43	AOI-Cap-Rock
6	08/07/2025 18:57:50.972	1343166	582244	1150	468	1727	1037	-1.75	AOI-Cap-Rock
7	08/08/2025 04:34:26.787	1345166	584544	5850	1011	2688	1671	-1.60	Flank
8	08/08/2025 04:34:29.150	1344396	585239	5491	925	3239	1485	-1.34	Flank
9	08/08/2025 07:07:03.106	1342963	582976	2801	365	937	490	-1.95	AOI-PPG-07
10	08/10/2025 06:24:21.237	1344866	581444	5050	959	2684	1777	-1.20	Flank
11	08/11/2025 12:12:32.348	1343566	585044	5350	824	3009	1301	-1.68	Flank
12	08/12/2025 02:28:37.269	1344766	584844	5850	980	2946	1584	-1.60	Flank
13	08/19/2025 09:22:28.880	1343066	582544	950	484	1723	1092	-2.00	AOI-Cap-Rock
14	08/20/2025 20:13:44.646	1342985	583057	2601	340	810	458	-1.83	AOI-PPG-07
15	08/21/2025 23:50:57.074	1344066	582944	3450	393	1033	555	-0.50	AOI-LGS-02
16	08/21/2025 23:51:06.261	1344050	582845	3252	527	1120	944	-1.56	AOI-LGS-02
17	08/21/2025 23:51:04.568	1344066	582844	3350	534	1078	876	-1.47	AOI-LGS-02

#	Event origin time CST (UTC-5)	Easting (ft)	Northing (ft)	Depth (ft)	ΔEasting (ft)	ΔNorthing (ft)	ΔDepth (ft)	Mw	Detected by
18	08/23/2025 21:03:36.652	1343015	582712	903	439	1429	524	-2.11	AOI-Cap-Rock
19	08/24/2025 16:38:41.668	1342866	583044	2850	396	1129	507	-2.01	AOI-PPG-07
20	08/25/2025 10:53:19.193	1344919	583347	3364	306	656	525	-2.04	Flank
21	08/27/2025 14:26:05.562	1343572	582448	2735	310	1437	677	-1.44	AOI-PPG-002
22	08/27/2025 14:26:11.803	1343564	582473	2744	313	1415	673	-1.09	AOI-PPG-002
23	08/27/2025 14:26:15.020	1343565	582463	2747	310	1408	668	-0.89	AOI-PPG-002
24	08/27/2025 14:26:11.801	1343564	582463	2748	312	1415	673	-0.94	AOI-PPG-002
25	08/27/2025 14:26:21.161	1343569	582456	2735	310	1426	672	-0.86	AOI-PPG-002
26	08/27/2025 14:26:41.443	1343447	582501	2827	340	1399	652	-1.68	AOI-PPG-002
27	08/29/2025 20:43:19.591	1344866	581244	4950	1082	2898	2372	-1.33	Flank
28	08/29/2025 21:46:50.031	1344966	581344	4850	1080	2893	2368	-1.43	Flank
29	08/30/2025 15:51:40.787	1344866	581244	4950	1085	2935	2385	-1.14	Flank
30	08/31/2025 06:32:22.947	1344166	582844	3350	515	1098	925	-0.68	AOI-LGS-02